

REMARKS

Claims 20-26 are in this application.

Claims 1-11, 18 and 19 have been withdrawn pursuant to the requirement for restriction.

Claims 12 and 17 have been replaced by new claims 20-26 in order to more particularly conform with 35 U.S.C. 112.

Original claim 12 was rejected as being unpatentable over Harper.

New claim 20 is directed to a method for measuring concentrations of water in a flow of an oil, gas and water mixture. Harper is directed to a method that provides a method to find the relative proportions of oil, water and gas in a mixture.

Claim 20 recites the step of directing a flow of a mixture to a pipe "having an excitation coil ... and a detector coil around the pipe ... said detector coil having a different resonant frequency from the excitation coil." Harper is void of any such structure. Specifically, Harper describes an embodiment in Fig. 1, wherein a coil 1 is disposed about a pipe 5. There is no separate second coil about the pipe 5. The embodiment of Fig. 3 employs a plurality of helical coils 1 around a pipe with each offset relative to the pipe and each other. However, all of these coils are "excitation" coils. None is a "detector" coil. Note is made that the Examiner considers the probe 4 of Harper to be a detector.

Claim 20 further recites the step of applying an alternating voltage to the excitation coil "at a frequency of up to 20 MHz to induce a variable magnetic field in a mixture." Harper does not describe or teach such a step. Harper teaches employment of a frequency of up to approximately 20 GHz and that by measuring the frequency and amplitude of the resonant peaks of two different helical coil resonators of different sizes, it is possible to calculate the relative proportions of oil, water and gas in the fluid flow.

(Column 3, lines 11-19.) Harper also notes that there is a draw-back to such a system. (Column 3, line 20.) Harper teaches frequencies of 500 MHz to 1GHz at Column 5, lines 52-55.

Claim 20 further recites the step of “registering a resultant detector voltage in the detector coil as a measure of the electrical conductivity of the water in the mixture independently of the fractions of oil and gas in the mixture.” Harper is void of any such step.

In view of the above, claim 20 is believed to be allowable over the references of record pursuant to the provisions of 35 U.S.C. 102 and 103.

Claim 21 depends from claim 20 and is believed to be allowable for similar reasons.

Claim 22 contains recitations similar to claim 20 and is believed to be allowable for similar reasons.

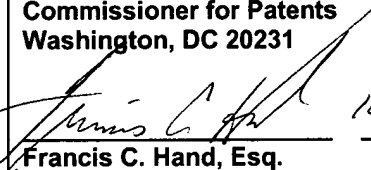
Claim 22 depends from claim 23 and is believed to be allowable for similar reasons.

Claim 24 is directed to an apparatus comprising “a pipe ... an excitation coil ... a detector coil ... having a different resonant frequency from said excitation coil; ... an oscillator ...; a voltage detector for registering a resultant detector voltage ... as a measure of the electrical conductivity of the water in the mixture independently of the fractions of oil and gas in the mixture; and means of comparing the resultant detector voltage ... against a calibration value to determine the concentration of water in the mixture.” As noted above, Harper is void of any such structure.

Claim 25 contains recitations similar to claim 24 and employs the method of claim 22. For reasons as expressed above, claim 25 is believed allowable over the references of record.

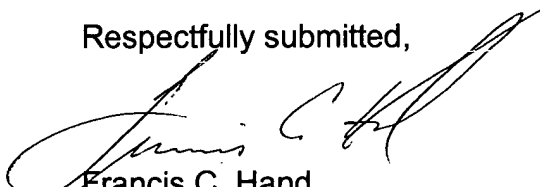
Claim 26 depends from claim 25 and is believed to be allowable for similar reasons.

The application is believed to be in condition for allowance and such is respectfully requested.

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I hereby certify that this correspondence is being deposited today with the U.S. Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents Washington, DC 20231	
 Francis C. Hand, Esq.	10-6-2003 Date

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Respectfully submitted,


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